

and separated from its fasciuli by cellular tissue. They are found only in the dorsal portion of the spine, and are usually eleven in number on each side. They arise from the transverse processes of the dorsal vertebræ, from the second to the eleventh, and each is attached by fibres running transversely inwards, to the arch of the vertebra next above that from which it arises. Each muscle, covered by the multifidus spinæ, is fixed by short tendinous fibres to the upper edge and posterior surface of the transverse process, and by fleshy fibres to the lower edge, and in part to the posterior surface of the arch, up to the base of the spinous process. The muscles have not all the same size; the lowest are largest, except the eleventh, which is small. The uppermost generally passes from the transverse process of the second dorsal vertebra, over the first, to the arch of the seventh cervical.

Professor Theil has discovered perfectly analogous muscles in the dorsal portion of the spine in several species of quadrumana, carnivora, and rodentia.—*Lond. Med. Gaz.*, from *Müller's Archiv. Heft. 2. 1839.*

## GENERAL ANATOMY AND PHYSIOLOGY.

5. *On the formation of Urea in the Animal Body.*—In illustration of this subject, Dr. MARCHAND has employed a modification of the experiment of removing the kidneys from dogs that had fasted for many days, and then seeking for urea in the blood (see Müller's *Physiologie*, Bd. 1. p. 586.) He has not starved the dogs on which the experiments were performed, but has fed them on perfectly pure sugar, which he had ascertained by the most careful examination to be entirely free from azote. He fed a large, healthy, and strong sheep-dog for 14 days with milk, to see how large a quantity of urea the urine of an animal thus simply nourished would contain. After the first five days he found 2.6 per cent. and in the next five days 3 per cent., at which proportion it remained stationary. The animal was now fed with perfectly pure distilled water, and pure sugar, of which he took 10 ounces daily. After six days, in which the dog appeared in very good health, the urine contained 2.8 per cent. of urea; in the next five days only 2.4 per cent; and after five days more only 1.8 per cent. The animal was now very thin and rather weak, but there were no ulcers on the cornea such as Magendie speaks of. He was now fed again with milk and *bouillon*, on which he rapidly recovered himself; and it was interesting to see that the proportion of urea in the urine did not keep pace with the improvement of condition, for the dog had recovered his *embonpoint*, while the urine still contained only 2.4 per cent. of urea. After 14 days of recovery under this diet, when the urine contained from 3.2 to 3.35 of urea, the dog was again fed on pure sugar and distilled water. After 8 days the proportion of urea fell to 2 per cent. The renal nerves were now tied, an operation followed by the same suppression of urine, with less danger than that of extirpation of the kidneys. The wounds soon healed, and for six days no particular symptom occurred; then vomiting and diarrhœa set in. Ten days after the operation the jugular vein was opened, and three pounds of blood drawn; from this blood urea was extracted, in a quantity amounting (in its combination with nitric acid) to 4.88 grains.

This fact seems to prove that the urea proceeds from the animal substances already formed in the body, and not, or at least not only, from unassimilated nutriment containing nitrogen.

Dr. M. has also obtained almost a direct proof of the presence of urea in healthy blood. The most remarkable property of this principle being its power of producing by its mere presence a different crystalline form in common salt than that which is usual, he has used this as a test of its presence. He found this test so delicate, that he could discover by it from 1-10th to 1-20th of urea, in from 100 to 150 parts of water. He mixed 20 pounds of serum of cow's blood with absolute alcohol, and filtered the fluid from the albumen. The fluid

was then evaporated to dryness in a water-bath, and the residue was completely exhausted with absolute alcohol; the latter was then distilled off, and the residue was dissolved in water and mixed with some common salt. After a few days some octobedral crystals formed, which were found to be pure hydrochlorate of soda; and as no other substance is yet known capable of producing this change of crystalline form, the presence of urica in healthy blood, may fairly be assumed—*Lond. Med. Gaz.* June, 1839, from *Müllers Archiv. Heft*. 1. 1839.

6. *On the Structure of the Corpus Luteum*.—ROBERT LEE, M. D., read before the Royal Med. Chirurgical Society, at their meeting on the 11th of June last, an interesting paper on this subject. He represents the Graafian vesicle in the human ovarium as a small spherical pellucid sac, containing the ovum, the granule, and the fluid with which it is surrounded. The vesicle itself he describes as always consisting of two membranous layers or coats, closely adhering together, the external surface being loosely united to the proper substance of the ovarium by soft cellular tissue, blood-vessels and nerves.

When impregnation takes place, the coats of the Graafian vesicle and peritonæum covering it burst, the contents escape, and around it a corpus luteum is gradually formed. The author states that the observations of De Graaf, Haller, and others, have proved that the corpus luteum is gradually formed in that ovarium from which the impregnated ovum has escaped; but it has not been positively determined by them whether the corpus luteum is produced by a thickening of the inner layer of the vesicle, as Professor Baer has supposed, or between the coats, as Dr. Montgomery believes, and if corpora lutea are not sometimes formed in the ovaria of women who have never been pregnant.

The author then proceeds to describe the appearances which he observed in the ovarium of a woman who died in St. George's Hospital, at the end of the second month of pregnancy, which have induced him to conclude that the corpus luteum is formed around both layers of the Graafian vesicle, and not between its coats, or by a thickening of the inner membrane. In the preparation of the ovarium the Graafian vesicle, like a small cyst, consisting of two distinct layers separated from one another, were clearly seen. A drawing of the recent corpus luteum, which had a deep orange colour, was likewise exhibited.

In two specimens of Fallopian tube conception, which were placed upon the table, the Graafian vesicle was likewise seen, surrounded by the corpus luteum. The same fact, the author adds, is still more evident in the ovarium of the gravid uterus of ten weeks, described and figured in the 17th volume of the *Medico-Chirurgical Transactions*.

In several of the preparations in the Hunterian Museum, at the College of Surgeons, which the author has recently examined, with Mr. Owen, he states that the Graafian vesicle is also seen inclosed within the corpus luteum, and forming its central cavity.

The author concludes this part of the paper by recommending additional observations to be made upon the subject, when opportunities, which are not very frequent, present themselves, in order that the correctness of the view which he has given of the structure of the corpus luteum may be rendered perfectly conclusive. All observations upon the subject, to be decisive, he remarks, should be made soon after impregnation and the date of conception, and all other circumstances should be clearly stated.

The author next proceeds to describe the changes which the corpus luteum undergoes in the latter months of pregnancy, and after delivery; and observes, that it is frequently almost wholly absorbed about the end of the third month subsequent to parturition. Various preparations were exhibited to illustrate these appearances.

In the ovaria of women who have never been pregnant, yellow oval-shaped bodies, he observes, are frequently found, which it is difficult to distinguish from true corpora lutea resulting from impregnations. The greater number of

these are produced by blood extravasated, within the Graafian vesicles; and he thinks they can generally be distinguished from true corpora lutea by this circumstance, that in the latter the corpus luteum surrounds the Graafian vesicles, but in false corpora lutea the yellow substance is usually contained within the Graafian vesicle. A thickening of the coats of the Graafian vesicle, and the changes it undergoes during menstruation, the author also conceives, might readily be mistaken for true corpora lutea. Various preparations and drawings were also exhibited, to illustrate these statements; and Dr. Lee closes the paper with the following remark, that from all the observations hitherto made on the corpus luteum, we may infer that it is never found but as a consequence of impregnation; that the yellow oval-shaped substances found in the ovaria of women who have not been pregnant, may be distinguished from true corpora lutea by the smallness of their size and irregularity of their shape, the greater depth at which they are situated in the ovarium, the absence of the white membranous appearance of the centre, and by the fawn or yellow-coloured substance being inclosed within the cavity, and not formed around the exterior surface of the Graafian vesicle.—*Lond. Med. Gaz.* June, 1839.

7. *BLAKE'S Researches on the Phenomena that result from the Introduction of Certain Salts into the Circulating System.*—Solutions of many of the salts of potassa, soda, ammonia, baryta, lime, and magnesia, have been, observes the author, injected into the veins and arteries, and the phenomena that have resulted have been, in most instances, studied with the hæmodynamometer. A marked difference in the physiological action of the substances has caused them to be divided into two classes: one class containing those salts that destroy the irritability of the heart as soon as blood containing them is circulated over the parietes of this organ; the other class containing those substances which, without diminishing the irritability of the heart, prove fatal by arresting the pulmonary circulation, apparently owing to an action that they exert on the capillaries of the lungs.

These two classes of substances, distinct in their physiological action, are equally so in their chemical composition; for it is only the salts of soda that do not appear to exert any influence on the irritability of the heart; while the salts of all the other bases (at least of all those that have yet been experimented with) arrest the contractions of the heart when they are introduced into the blood in any quantity.

If the presence of the salts of soda in the blood (continues the author) does not arrest the irritability of the heart, it, however, gives rise to other phenomena, which would place these salts amongst the most rapidly fatal poisons. If a solution of one of these salts is injected into the jugular vein of a dog, the supply of blood to the left side of the heart is cut off in about six seconds, although the contractions of this viscera continue. At the same time the blood accumulates in the right side of the heart and venous system to such an extent, as to produce a degree of pressure on the parietes of the veins, equal to a column of mercury of two inches. This pressure being propagated to the parietes of the ventricles of the brain, as well as to the other parts of the venous system, must necessarily produce on the encephalon a degree of compression quite sufficient to account for the rapidity with which death takes place in the animals submitted to this experiment; all signs of life having disappeared about forty seconds after the injection of the poison into the veins.

After death, the heart still retains its irritability, but so powerful is the obstacle which the capillaries of the lungs oppose to the passage of these substances, that sometimes it has been impossible to detect the slightest trace of them in the left side of the heart. When the quantity of salt injected into the vein is not sufficient to completely arrest the passage of the blood through the lungs, its action on the capillaries of these organs is still manifested by an increased secretion which takes place in the bronchial tubes, and which, in a short time, causes the death of the animal by asphyxia.

The phenomena that follow the injection of one of the salts of the second class

into the veins are very different from those above described. The most striking manner of observing their action is by injecting them into the veins of an animal whose thorax has been previously opened, artificial respiration being performed. In these instances, the pulsations of the heart are *seen* to be arrested in from seven to ten seconds after the injection; and the irritability of this organ is so completely destroyed, that the application of the poles of a galvanic pile, a few seconds after death, does not produce any contractions. This sudden arrest of the action of the heart does not produce death so rapidly as does the stoppage of the pulmonary circulation; sensibility and respiratory movements continuing from two to three minutes after the contractions of the heart have ceased.—*Lancet*, from *Compte Rendu de l'Acad. des Sci.* No. 22.

## PATHOLOGICAL ANATOMY AND GENERAL PATHOLOGY.

8. *Ileo-cæcal Abscess, with Perforation of the Intestine and Groin.*—Mr. Ferrall presented to the Pathological Society of Dublin, the recent parts, in a case of this description. The patient, a young girl, was admitted into the Meath Hospital, with tumour in the right iliac region, about fourteen days after the first attack; suppuration of the tumour had then occurred; the bursting of the abscess was soon indicated by a copious discharge of purulent matter from the bowels; soon after this another tumour formed in the upper part of the thigh, separated from the former by a deep sulcus corresponding to Poupart's ligament, below which an opening occurred, through which pus and ultimately fecal matter was discharged. Mr. Ferrall exhibited the mode of communication between the abscess and opening in the groin; the fistula took a direction at first downwards, and afterwards upwards and inwards, the omentum adhered to the parietes of the abdomen and cæcum; the communication from the abscess into the intestine was by two small openings separated by a slip of mucous membrane, and resembling the appearance often seen in the integuments when an abscess opens by a slough.

An important peculiarity in this case was the mode in which the matter had made its way externally, namely, by perforation of the iliac fascia, and descent on the outside of the femoral vessels.

Mr. Ferrall also showed that in this case the communication with the intestine did not, as Dr. Burne supposes, take place through the appendix vermiformis, the appendix being free from disease. The perforation had taken place from the abscess into the intestine, being the third form of the disease formerly described by Mr. Ferrall in the *Edinburgh Journal*.—*Dublin Journal*, March and May, 1839.

9. *Ulceration of the Brain.* By GEORGE P. MAY, M. D.—Daniel Prior, ætat. 15, thrown from a horse, Jan. 17. On being visited two hours after the accident, was found to have received an extensive lacerated wound of the scalp, across the right parietal surface, by which the bone was denuded to a great extent. Considerable hæmorrhage from the wound took place, amounting to more than a pint in quantity. He retained perfect possession of his senses, and complained little of his head, but referred his sufferings to his elbow-joint, which appeared to have received a violent contusion. On the fourth day after the injury he was able to come down stairs, and exercise himself in the open air; by this period a great part of the wound had healed by the first intention. For three weeks every thing went on favourably, and the boy appeared to be the subject of little or no ailment. About the commencement of the fourth week symptoms of constitutional irritation began to manifest themselves; the pulse became quick, and the discharge assumed, for the first time, an unhealthy character; this condition continued, without much alteration, for six days, during which time he complained of pain of head.